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Application Serial No.: 10/045,055

Reply to Office Action dated 27 February 2006

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**AMENDMENTS TO THE CLAIMS**

The following Listing of Claims replaces all prior versions and listings of claims in the Application.

**Listing of Claims:**

The following Listing of Claims will replace all prior versions and listings of claims in the subject Patent Application.

**Listing of Claims:**

1. (Currently amended): A debugger for visual debugging of a declarative language encapsulated constraint system [[,]] comprising:

a collector ~~for operable to collecting~~ a plurality of generation events during a test generation process, ~~comprising constraint resolution, generation objects, the said collector further collecting from said test generation process a plurality of generation objects comprising entities, said generation entities including fields representative of at least one data structure or variable, and constraints for defining relationships between respective fields, and further comprising wherein said generation events correspond to generation decisions dynamically generated executed during said test generation process to apply said constraints to said fields; constraint resolution, wherein both said generation objects and said generation decisions comprise generation events for collection by said collector~~ [[,]] and

a graphical user interface operable to graphically represent and concurrently display systematic, graphical representation for graphically relating said collected

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generation ~~objects~~ entities and corresponding ones of said generation events collected responsive to said generation decisions [[,]] ~~during said test process for debugging said declarative language encapsulated constraint system.~~

2. (Currently amended): The debugger of claim 1, wherein said ~~graphical representation is as~~ collected generation entities and corresponding ones of said collected generation events are displayed on said graphical user interface in a two dimensional chart.

3. (Currently amended): The debugger of claim 2, ~~wherein said two dimensional chart is based on generation events collected during the generation process and static analysis phase, each event reflecting a generation operation, and wherein~~ said generation entities for generating said generation events are presented displayed on a first dimension of said chart and a second dimension represents said generation decisions in a linked sequence an execution sequence, with said generation events being displayed as aligned in alignment with their related corresponding generation entities.

4. (Currently amended): The debugger of claim 1, further comprising [[,:]] a data browser for interactive selection of said generation entities to be viewed.

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5. (Currently amended): The debugger of claim 1, further comprising ~~[[:]]~~ a step tree ~~for presenting~~ displaying a sequence of steps performed by said test generation process ~~the generator~~ ~~[[,]]~~ ~~for identifying the step where the computation diverged from the expected behavior.~~

6. (Currently amended): The debugger of claim 1, further comprising ~~[[:]]~~ an event browser for displaying said generation events.

7. (Currently amended): The debugger of claim 1, further comprising ~~[[:]]~~ an order browser for displaying generation field order decisions.

8. (Currently amended): A method for visual debugging of a constraint system being encapsulated in a declarative language ~~[[,]]~~ comprising:

concurrently displaying indicia indicative of relationships between a plurality of generation events collected during [[a]] constraint resolution of said the constraint system by from a generator [[,]] ~~such that a relationship between said plurality of generation events and a plurality of generation entities comprising fields representative of at least one data structure or variable, and constraints for defining relationships between respective fields, for generating said generation events is graphically displayed, and wherein an order of execution of said~~

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generation entities is also graphically displayed, and [[,]] ~~for visual~~

~~debugging of the group of constraint system by determining responsive to~~  
said displayed relationships one of said generation events to identify therefrom a  
constraint that remaining unresolved for a corresponding one of said fields.

9. (Currently amended): The method of claim 8, further comprising [[,]] viewing a plurality of generation events sequentially from a selected event.

10. (Original): The method of claim 9, wherein said sequence is displayed forward from said selected event.

11. (Original): The method of claim 9, wherein said sequence is displayed backward from said selected event.

12. (Currently amended): A method for ~~debugging~~ displaying events of a generation process ~~with~~ to a user for debugging the generation process [[,]] comprising:

~~analyzing the generation process, comprising constraint resolution of a~~  
~~constraint system, said constraint system being encapsulated in a declarative~~  
~~language, to extract~~ extracting a sequence of events from a constraint resolution  
procedure of ~~from~~ the generation process wherein constraints define relationships

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between fields representative of at least one data structure or variable, said constraint resolution procedure determining an order in which said constraints are applied in the generation process, wherein said order in which said constraints are applied is determined from an order of said sequence of events; and

displaying at least a portion of said sequence of events to the user in a visual display, ~~wherein said visual display includes~~ concurrently with a representation of at least one generated field from at least one event.

13. (Canceled).

14. (Original): The method of claim 12, wherein said visual display includes a representation of at least one constraint from at least one event.

15. (Currently amended): The method of claim 12, wherein said visual display includes a representation of a relationship between at least one ~~generation event~~ related to of said events and a generation entity.

16. (Original): The method of claim 12, wherein said visual display includes at least one type of information displayed as a result of a selection by the user.

17. (Currently amended): A debugger for ~~debugging~~ visualizing a generation

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process ~~[[,]]~~ comprising:

an analyzer ~~for~~ analyzing resolution of constraints for defining relationships between respective fields representative of at least one data structure or variable, and said constraints being applied during the generation process comprising constraint resolution of a constraint system, said constraint system being encapsulated in a declarative language, to extract a sequence of events from the generation process, said constraint system being encapsulated in a declarative language, said sequence of events occurring in an order corresponding to an order in which constraint resolution decisions were made in the generation process; and

a visual display ~~for~~ operable to concurrently displaying information related to at least one field ~~[[,]]~~ and one of on which a constraint was applied, information related to how said constraint was applied a generation event, a path of a generation event, and information related to said order in which said constraint resolution decisions were made ~~a combination thereof.~~

18. (Original): The generation debugger of claim 17, wherein said visual display further displays information related to an event collected during static analysis.

19. (Original): The generation debugger of claim 17, wherein said visual display further displays information related to an event collected during program execution.

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20. (Original): The generation debugger of claim 17, wherein said information is represented with at least one icon and wherein said visual display further displays information when said icon is selected.

21. (Original): The generation debugger of claim 17, wherein said visual display further displays ordering information for a plurality of fields.

22. (Original): The generation debugger of claim 21, wherein said visual display further displays ordering information based on static analysis.

23. (Currently amended): The generation debugger of claim 21, wherein said visual display further displays ordering information based on order computed dynamically.

24. (Original): The generation debugger of claim 21, wherein said visual display further displays ordering information related to a group of fields selected through said visual display.